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ABSTRACT

An explanation of why Asian American students perform better than others in school may lie in the nature of the learning programs they receive at home. The purpose of this paper is to define such programs that account for most of the differences in academic achievement among racial/ethnic groups. Data were used from the National Education Longitudinal Study of 1988 concerning family characteristics and learning activities at home from parents and students, as well as school experience and school performance of students, and the findings from previous research in the area of student performance. Areas analyzed involved such categories as demographic environment of the family, discipline and effort, parental assistance, educational pressure, and educational opportunities. The first analysis examined whether the selected variables of learning programs at home were significantly related to student achievement as measured by the combined test scores of students on reading and mathematics tests. A second analysis examined whether there were differences in these variables between Asian American students and students from other racial-ethnic backgrounds. Two major findings were drawn from the study: (1) learning programs at home are important factors in student academic achievement (students from families supportive of learning are likely to have high achievement scores); and (2) learning programs at home account for most of the difference in student achievement among racial-ethnic groups. (Contains 22 references.) (GLR)

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Many studies have documented that Asian American students in general do well in school. They have higher achievement scores, lower dropout rates, and higher college entrance rates than other students (Hsia & Peng, 1992; National Center for Education Statistics, 1992). Even those Asian American students with disadvantaged backgrounds, such as refugee students with limited English proficiency and low socioeconomic condition, frequently contradict expectations and have high academic achievement in school (Caplan, Choy, & Whitmore, 1992).

This phenomenon has raised some questions for many educators and researchers: Why do Asian American students perform so well in school? What makes them different from other students? From the instructional point of view, one might assume that Asian American students attend better schools, but there is no support for this assumption. One might also assume that Asian American students receive more learning opportunities in school. This might be possible because teachers tend to reward students who behave well in class (i.e., model students) and Asian American students tend to behave well in the classroom (Wong, 1980; Schneider & Lee, 1990). However, one might further ask: What makes them behave better and why are they more docile and attentive in the classroom? Why do they behave differently from many other students in the same class under the same teacher?

Clearly, something beyond school and classroom activities makes the difference. Some scholars have stressed the role of culture at the collective level (e.g., ethnic group) (Gibson, 1988; Ogbu, 1987). They have theorized that certain characteristics of Asian culture such as docility, industriousness, respect for authority, and emphasis on learning are compatible with those required for success in school. The next question then is: How do

Asian American students acquire these characteristics, or what are the processes and practices that produce such outcomes? One plausible explanation is that Asian American students receive different learning programs at home. Their parents in general are more supportive of learning and provide them with greater learning opportunities, assistance, and pressure for learning (Hess & Shipman, 1965; Moynihan, 1965). These different learning programs at home pass on the traditional cultural values from parents to children and at the same time help children to excel and to be resilient (Clarke-Stewart, 1988; Garmezy, 1985; Werner & Smith, 1982). These results are naturally manifested in student performance in school. As documented by Coleman and his associates more than two decades ago (1968), what students bring to school makes the difference in student achievement.

It is, therefore, the purpose of this study to define such learning programs at home that account for most of the differences in academic achievement among racial/ethnic groups. Specifically, this study asks: Do Asian American students have different learning programs at home? What are they and how do they differ from other students' programs? Are Asian American students' home environments more supportive of learning or more conducive to learning? What can be learned from their programs if one wants to help future parents in general?

Data Base for This Study

The National Education Longitudinal Study of 1988 (NELS:88) provided rich data for addressing the issues raised for this study. NELS:88 is the third longitudinal study administered by the National Center for Education Statistics, U.S. Department of Education. It began with its base-year data collection from a representative sample of over 25,000 eighth graders and their parents, teachers, and school administrators throughout the country in the spring of 1988, and it was scheduled to follow up these students every two years for ten or more years. In the base-year survey, NELS:88 collected comprehensive information

about family characteristics and learning activities at home from parents and students as well as school experience and school performance of students. Details of the study design and the content of the data are described in the User's Manual of the data file (Ingels, Abraham, Karr, Spencer, & Frankel, 1990).

In addition to rich data about home environments, NELS:88 also had an adequate sample of minority students. The sample included 1,527 Asian American, 3,171 Hispanic, 3,009 Black, and 299 Native American students, as well as 16,317 white and 276 other students. These classifications were based primarily on students' own responses, with some using their parents' responses. Students were classified into Hispanic and non-Hispanic first, and the non-Hispanic students were then grouped into Asian, Black, white, and Native American. Asian American students included all students whose origins were Asian countries and Pacific islands.

Learning Programs at Home

Based on findings from previous research studies, learning programs at home can be defined as the physical resources, educational activities and processes, and psychological environment that are supportive or conducive to learning. Studies have found that the socioeconomic condition of the family (as an indicator of learning resources and other physical environments at home), the extent of communication among family members, and the learning activities provided or supported by parents are related to student learning (Schneider & Lee, 1990; Clarke-Stewart, 1988; Hess & Holloway, 1984; Scott-Jones, 1984). In terms of specific home activities, Epstein (1986) documented that the following parenting strategies help children learn: a) reading to children regularly or listening to them read aloud; b) taking children to the library; c) getting children to talk about what they did that day in class; d) watching a specific television program with children and then discussing the show; e) including children in any of the parents' own educationally enriching activities;

f) supervising and assisting children in completing homework tasks; and g) providing children with spelling practice, math drills, and practice activities. Studies also have found that high educational expectations for children, sufficient learning materials at home, and other resources for acceleration or remediation help children to achieve (Peng & Lee, 1992; Mordkowitz & Ginsburg, 1986, Schneider & Lee, 1990).

These findings of previous studies provided a framework for identifying variables that can be used to measure learning programs at home. A number of such variables are available from the base-year data of the National Education Longitudinal Study of 1988 (NELS:88). These variables were grouped into the following categories:

Demographic environment of the family: There are three variables: family composition, parents' education level, and family income. Family composition was coded as follows: if students were living with both their biological mother and father, they received a code of 1; all other students received a code of 0. Parents' education level was based on the highest level attained by either parent or guardian with levels ranging from eighth grade (coded 1) and not high-school graduate (coded 2) to Ph.D, M.D. (coded 13). Information about family income was provided in categories which range from no income (coded 1), less than $1,000 (coded 2), and $1,000 - $2,999 (coded 3) to $200,000 or more (coded 15).

Discipline and effort: Two variables were used to reflect discipline and effort either self-initiated by students or imposed by parents: time on homework and time on TV. Both were measured by the number of hours spent each week. The original data were provided in categories such as 1-2 hours and 4-5 hours. This analysis took the mid-point of each category as the measure. Thus, the 1-2 hours category was converted into 1.5 hours.

Parental Assistance: This was measured by two variables: assistance in school work and discussion about school plans. Parents or guardians were asked how often they helped their child with homework. The responses were coded in four categories: seldom or never

(coded 1) to almost every day (coded 4). Parents were also asked how often they talked to their children about (1) their experience in school, (2) their plans for high school, and (3) their educational plans for after high school. Responses to each question were coded from 1 (not at all) to 4 (regularly). The average of the responses to these three questions was used to measure the variable of discussion about school plans.

Educational Pressure: Parents' educational expectations for their children were used to measure the educational pressure imposed by parents. The expectations were measured by the number of years of schooling expected which ranged from 9 (less than high school diploma) to 20 (Ph.D., M.D., or other advanced degree).

Educational Opportunities: Two variables were included. The first variable is lessons outside of the regular school as measured by the total number of lessons attended such as dancing, music, and art. The second variable is educational activities as measured by the total number of activities participated in, such as going to museums, visiting the public library, and attending concerts.

Analysis and Results

The first analysis examined whether the selected variables of learning programs at home were significantly related to student achievement as measured by the combined test scores of reading and mathematics. The achievement scores were standard scores with a mean of 50 and a standard deviation of 10. The type of school -- private (coded 1) vs. public (coded 0) -- was also included in this and later analyses as a measure of the characteristics of schools attended by students.

It should be noted that all analyses in this study involved the use of sampling weights and the adjustment of the variance of a statistic because of the complex sample design. Description of these methods was provided in the User's Manual of the data file (Ingels, et al., 1990). The sample size was also adjusted. The effective sample size for each racial-

ethnic group was reduced by the design effect which was estimated to be 2.54.

As shown in Table 1, all selected variables were related to student achievement; the correlation coefficients ranged from .09 with discussion about school plans to .42 with educational expectations. As expected, parents' education level and family income were positively related to achievement, confirming previous study findings that students with higher family socioeconomic status were likely to have higher academic achievement. The correlation with school type (.12) indicates that private school students had higher achievement than public school students. Likewise, the positive correlation with family composition means that students living with both natural parents had higher achievement scores than other students. The -.15 correlation for TV watching indicates that more TV watching led to lower achievement scores. In contrast, the correlation with hours spent on homework (.17) indicates that more time spent on homework was related to higher achievement scores. The correlation coefficients with outside lessons and educational activities were both .27. The negative correlation between parental help on homework and achievement is contrary to a popular notion of the positive effect of parental involvement; it might mean that parents were more likely to help a child when the child had problems with school work. Among all variables, educational expectations for children had the highest correlation coefficient (.42), indicating that high expectation was a powerful predictor of student achievement.

The above patterns were further examined by racial-ethnic groups. Results were mostly consistent across racial-ethnic groups, except that some correlation coefficients were no longer significant at the .01 level, particularly for Native American students, primarily because of small effective sample sizes.

Insert Table 1 about here

The second analysis examined whether there were differences in these variables between Asian American students and students from other racial-ethnic backgrounds. The results are presented in Table 2. Consistent with other study findings, Asian American students had higher achievement scores than all other minority students; they were about seven-tenths to nine-tenths of a standard deviation higher. The difference in achievement between Asian American and white students was not significant at the .01 level.

In terms of the type of school attended, there was no difference between Asian American and white students. However, proportionally more Asian American students attended private schools than Hispanic and Black students.

As to learning programs at home, the results indicate that Asian American parents did not communicate (i.e., discuss school plans) with their children as much as Black and white parents. Asian American parents, contrary to the popular notion, did not directly help their children in school work more than other parents -- consistent with a finding in a study by Schneider and Lee (1990). However, Asian American parents set higher expectations than all other parents and provided their children with more learning opportunities than other minority parents. The major differences are highlighted below.

a. Asian American students were more likely than students of any other group to live in an intact, two-parent family. Over 79 percent of Asian American students lived with both natural parents as compared to 39 percent of Black students, 54 percent of Native American students, 65 percent of Hispanic students, and 68 percent of white students.

b. Asian American students' parents were more likely to have an advanced college degree. More than 22 percent of them had an advanced degree as compared to 4 percent of Native American parents, 5 percent of Black parents, 6 percent of Hispanic parents, and 14 percent of white parents.

c. Asian American students were more likely to spend more time on homework than all other students and less time on TV than Black students.

d. Asian American parents' educational expectations for their children are highest among the groups -- an average of 16.7 years of education (i.e., beyond a baccalaureate degree). A further examination revealed that about 80 percent of Asian American parents expected their children to have at least a bachelor's degree as compared to 50 percent of Hispanic, 58 percent of Black, and 62 percent of white parents.

e. Asian American students attended more lessons outside of the regular school (e.g. language, art, music, dance) and participated in more educational activities (e.g.,visiting the public library and going to museums) than other minority students.

Insert Table 2 about here

While the above results show differences between Asian American and other students, they do not show whether they account for the difference in academic achievement among racial-ethnic groups. To address this issue, the following regression analyses were conducted. The first regression analysis included only racial-ethnic codings as predictors; the second regression analysis included the type of school and the variables of learning programs at home; the third regression analysis included all variables as predictors. Results of these analyses are presented in Table 3.

From the results of the first regression analysis, it is not surprising to find that race-ethnicity was related to academic achievement. Overall, race-ethnicity accounted for 10 percent of the variance in student achievement (R^2 = .10). Results from the second regression analysis show that the school type and variables of learning programs at home accounted for 30 percent of the variance of student achievement (R^2 = .30), three times as much as race-ethnicity did. An interesting observation is that when all of the variables were included in the analysis, the proportion of variance accounted for was increased to 33% (R^2 = .33) which indicates that race-ethnicity added only 3% of accountable variance (30% -

33%). By comparing the unstandardized regression coefficients in the first and the third analysis, one can also see that the difference of achievement predicted by race-ethnicity decreases after learning programs at home were considered. For example, the coefficient for the Asian-Black comparison decreased from 3.94 to 2.64. Similarly, the coefficient for the Asian-Hispanic comparison decreased from 1.89 to .52.

The decrease of differences between Asian American and other students can be further illustrated by the estimated differences in achievement scores between Asian American and other students. For example, using the first regression function, the difference between Asian American students (coded 1) and Hispanic students (coded -1) was 7.12 [i.e., (1.89 *1 + 3.94 * 1 - 4.27 * 1 + 3.67 * 1) - (1.89 * -1)]. In contrast, the difference between Asian American and Hispanic students was reduced to 2.87 after controlling for the differences in learning programs at home and school types (i.e., holding these variables constant). Likewise, the difference between Asian American and Black students was reduced from 9.17 to 4.99, and the difference between Asian American and Native American students was reduced from 8.90 to 2.43.

All these results indicate that the differences in learning programs at home largely accounted for the racial-ethnic differences in student achievement. In other words, when learning programs at home were considered, the differences in student achievement between Asian American and other minority students were largely reduced.

Insert Table 3 about here

Discussion

Two major findings were drawn from this study: a) learning programs at home are important factors of student academic achievement -- students from families supportive of learning are likely to have high achievement scores; b) learning programs at home account

for most of the difference in student achievement among racial-ethnic groups.

The first finding is not new; it further confirms the importance of the parental functions in educating children. These functions directly or indirectly create a culture for children and are particularly critical in developing school readiness for young children which is the first national education goal set by President Bush and State Governors in 1990. Since many parents may not have sufficient knowledge about educating their children or may be incapable of caring for their children, any educational improvement effort should include programs for helping parents in performing their parental functions.

The second finding is welcoming because it provides a basis for developing strategies for narrowing the differences in achievement between racial-ethnic groups. As indicated earlier, future educational improvement efforts should include the improvement of learning programs at home. Without adequate support at home, any school education reform may continue to show results far short of expectations as witnessed in the National Education Goals Report (National Education Goals Panel, 1992).

The question then is: What can parents do to help their children? While this study is not capable of providing definite answers, the results are consistent with the previous study findings that discipline and effort as well as emphasis on learning are key to academic success (Tomlinson, 1992; Caplan, Choy, & Whitmore, 1992; Stevenson, 1992). Parents may emphasize such educational activities as doing homework, taking additional lessons outside the school, and going on educational trips. Other activities may include reading to young children, listening to children, and assisting children with school work suggested by researchers (Epstein, 1990). These activities help to structure children's out-of-school time so that it is directed to learning. Parents may also set high expectations for their children to communicate the idea that education is highly valued in the family and to provide children with a sense of mission, direction, and challenge.

Table 1. Correlation coefficients between achievement and selected variables of

learning programs at home

Selected variable	Correlation coefficient					
	All Students	Asian	Hispanic	Black	White	Native Am.
School type (private)	.12*	.12*	.14*	.15*	.11*	.16
Demographic Environment:						
Family composition	.14*	.18*	.04	.13*	.10*	.14
Parents' education	.38*	.38*	.34*	.30*	.36*	.26*
Family income	.34*	.39*	.29*	.31*	.28*	.29*
Discipline and Effort:						
Time on homework	.17*	.22*	.19*	.11*	.17*	.12
Time on TV	-.15*	-.14*	-.02	.03	-.15*	.06
Parental Assistance:						
Help homework	-.13*	-.08	-.03	-.12*	-.15*	-.04
Discuss plans	.09*	.05	.13*	.10*	.10*	.11
Educational Pressure:						
Educational expectations	.42*	.47*	.34*	.36*	.46*	.23*
Educational Opportunities:						
Outside classes	.27*	.27*	.18*	.17*	.27*	.27*
Educational activities	.26*	.23*	.19*	.22*	.26*	.26*
Effective sample size	9,685	601	1,248	1,185	6,424	118

* $p < .01$

Table 2. Average score on selected variables by race/ethnicity

Variable	Asian	Hispanic	Black	White	Native Am.
Achievement	53.00	45.87*	43.82*	52.03	44.09*
% in public school	84.56	91.02*	93.36*	87.29	92.36
Demographic Environment:					
% living with both parents	79.38	65.18*	38.84*	68.22*	53.49*
% parents >BA degrees	22.24	5.47*	5.46*	13.85*	4.19*
% with income < $15,000	17.80	37.53*	46.99*	14.08	40.08*
Discipline and Effort:					
No. of hours on homework	6.81	4.75*	5.19*	5.66*	4.73*
No. of hours of TV	20.64	21.99	26.69*	20.34	22.74
Parental Assistance:					
How often help homework#	2.10	2.05	2.33*	2.26*	2.10
How often discuss plans#	3.32	3.37	3.48*	3.45*	3.42
Educational Pressure:					
No. of years of education	16.70	15.25*	15.42*	15.32*	15.11*
Educational Opportunities:					
% having outside lessons	62.55	44.56*	45.13*	61.59	42.56*
% having outside activity	91.54	79.92*	83.22*	91.08	78.39*
Effective sample size	601	1,248	1,185	6,424	118

* differs from Asian Americans based on Scheffe tests at the .01 level.

\# the value ranges from 1 to 4 where 4 means regularly or almost daily.

Table 3. Results of multiple regression analyses

Predictor	Unstandardized Coeff. (B)			Standardized Coeff.(beta)	
Asian vs. Hispanic	1.89*		.52	.07*	.02
Asian vs. Black	3.94*		2.64*	.15*	.10*
Asian vs. White	-4.27*		-2.98*	-.23*	-.16*
Asian vs. Indian	3.67*		2.17	.08*	.05
Constant	47.76*	30.38*	27.44*		
School control		.53	.55	.02	.02
Parental education		.46*	.42*	.16*	.15*
Family income		.49*	.31*	.13*	.08*
Family composition		.69	.40	.03	.02
Homework		.18*	.15*	.10*	.08*
Television		-.06*	-.04*	-.06*	-.04*
Ed. activity		.47*	.34*	.08*	.06*
Outside classes		.61*	.52*	.08*	.07*
Edu. aspirations		1.05*	1.19*	.25*	.29*
Discuss plans		-.18	-.12	-.03	-.02
Assist in homework		-1.67*	-1.64*	-.17*	-.17*
R^2	.10*	.30*	.33*		

Race-ethnicity was coded as follows: Asian vs. Hispanic indicates that Asian was coded 1, Hispanic, -1, and all others, 0. Likewise, Asian vs. Black means Asian was coded 1, Black, -1, all others, 0. * $p < .01$

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